

REMARKS

This Amendment is a full and timely response to the Office Action dated March 7, 2007. Reexamination and reconsideration are respectfully requested.

Claims 1, 5, 6, 7, 8 and 9 are rejected under 35 U.S.C. 103(a) as anticipated by Maguire et al. (U.S. Patent No. 6,322,173) in view of Maguire et al. (U.S. Patent No. 6,783,196) and Bottom et al. (U.S. Patent Application Publication No. 2002/0145336). Claims 2-4 are rejected under 35 U.S.C. 103(a) as unpatentable over Maguire 173 and Maguire 196 and Bottom and further in view of Lawson (U.S. Patent No. 5,829,849). The rejections are respectfully traversed.

(1) At lines 12 to 14 on page 4 of the Office Action, the Examiner stated as follows: "It is not really clear why the combination of references as set forth in the rejection would have a problem of decreased rigidity as alleged on page 7, or why this combination would not have a suitable angle of flexion."

As described in the Applicant's response to the previous Office Action (response filed on December 13, 2006), a combination of structures (B + C + D¹) has a problem in terms of decrease in link rigidity. More detailed description of the link rigidity decrease will be described below.

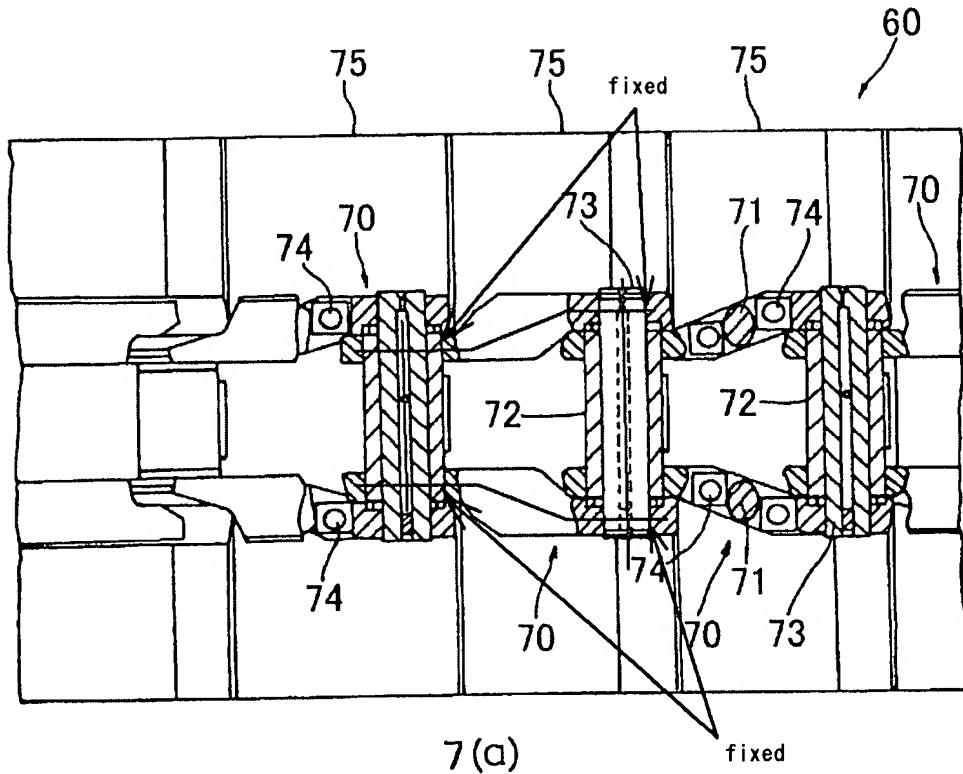
In Fig. 7 of the present application, a prior art structure is shown to be compared with the present invention in view of the link rigidity. Most of the tracks commercially—supplied now are of this structure.

Structures B, C and D are defined as follows:

B: an alternate combination of external links and internal links which forms a track link;

C: the internal link and the external link are symmetric with respect to a vertical axis line;

D: a rotatable bushing.

FIG. 7

According to the prior structure, a pair of links 71, 71 are respectively fixed at one end thereof by a coupler pin, while the other end is fixed by a track bushing 72, thus forming a closed rectangular (octagonal) structure (71 — 72 — 71 — 73) having a rigid segment. This structure includes none of the above structures B, C or D. By endlessly coupling the same segments, a link chain or a track is formed. With this structure, load centralization on a particular part can be avoided because it is principally established that the link chain has a structure with homogenous strength.

According to the cited reference (Maguire '173, see Fig. 2 below), on the other hand, a segment formed by external links 18, 18 is a rectangular, rigid segment similarly to the prior art above. However, as to internal links 16, 16, a coupler pin 28 that becomes a key factor of the strength of the structure is rotatable and not fixed with respect to the internal link 16,

which means that a completely rigid segment is not formed. Therefore, when a load is imposed on a link chain constructed such that the segments formed of the external link and the internal link are alternately coupled, load stress is concentrated on the periphery of a bore of the internal links which are inferior in strength as a result of the rotational freedom. For this reason, it is principally unavoidable in the combination structure of (B + C + D) to have a part with less rigidity.

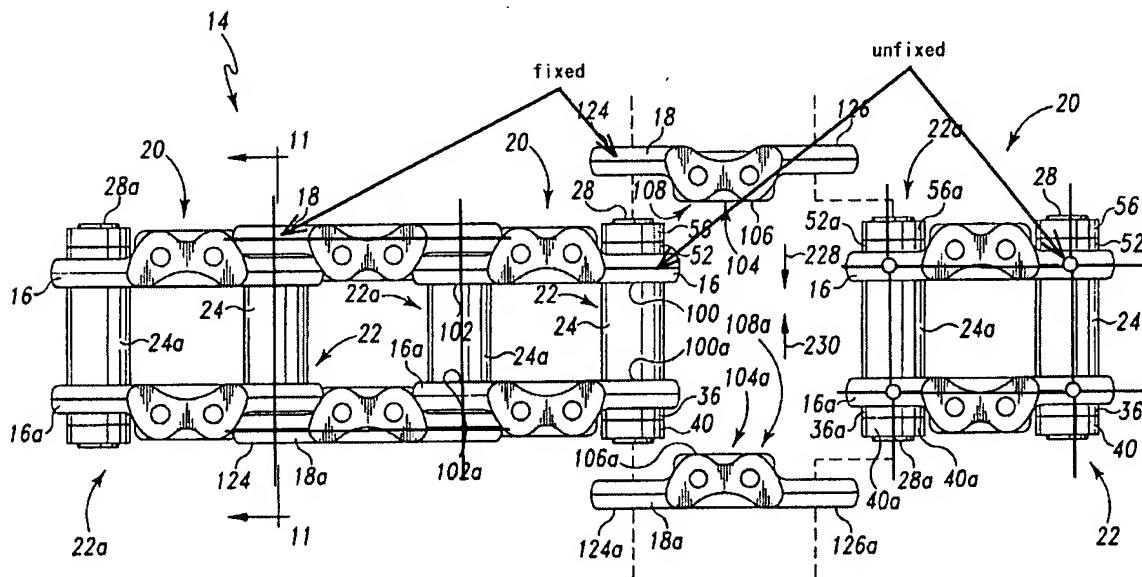


Fig. 2

(2) At lines 15 to 19 on page 4 of the Office Action, the Examiner stated as follows: "On page 8 Applicants seem to state that Maguire et al. '173 and Bottom are not directed toward the problem solved by the claimed invention, but absent any structural differences between the combination of Maguire et al '173 as modified by Bottom and the claimed invention, or a clear reason why the combination is unobvious, it is hard to see how the finding of the problem would make any difference toward patentability."

It is described in the Applicant's specification that when load is imposed on a track in which a track bushing is rotatable with respect to a track pin, stress is concentrated on the periphery of a mount part of an internal link. (See also the above argument in item (1) for more detail.) Applicant's response to the previous Office Action filed on December 13, 2006, is summarized as follows: In

order to combine Maguire and Bottom, the above finding of the problem is necessary. However, as there is no mention of the problem in either Maguire or Bottom, a combination of these references based on the problem is impossible. As such the present invention has inventive step over the cited references.

In the outstanding Office Action, the Examiner responded to the Applicant's argument stating that the arguments against the Maguire et al patents and the Bottom patent are not entirely understood.

Fig. 4 of Bottom shows rotating bushing 92 and a structure of an internal link which has a boss width larger than that of an external link. However, there is no statement in Bottom that describes the above magnitude relation of the boss widths. In the present invention, stress concentration at the point of use is considered to be a technical problem. On the other hand, Fig. 4 of Bottom shows a step structure (see a part where there is a thrust ring 96 and an outer bore 98) that may induce stress concentration, and as such the above technical problem is not considered.

This is due to the fact that a part susceptible to the stress concentration in a track link structure is superficially considered to be on the periphery of a boss part of an external link where a coupler pin is fixed, and not on the periphery of an internal link where a coupler pin is rotatable. It is not appropriate to combine the structure that does not take the above technical problem into consideration with Maguire only because the structure looks similar at the first glance.

Fig. 1 below shows calculated stresses imposed on an internal link of a track having a structure in which an internal link and an external link have same width (i.e., same as the structure of Fig. 2 of Maguire) under the condition that a tractor weighing 70 ton travels. Note the left half of the drawing is a calculational dummy part and right half of the drawing is the calculated stress diagram.

It is understood from the drawing that a red zone indicating a part where a great stress is imposed is seen mainly near a boss part.

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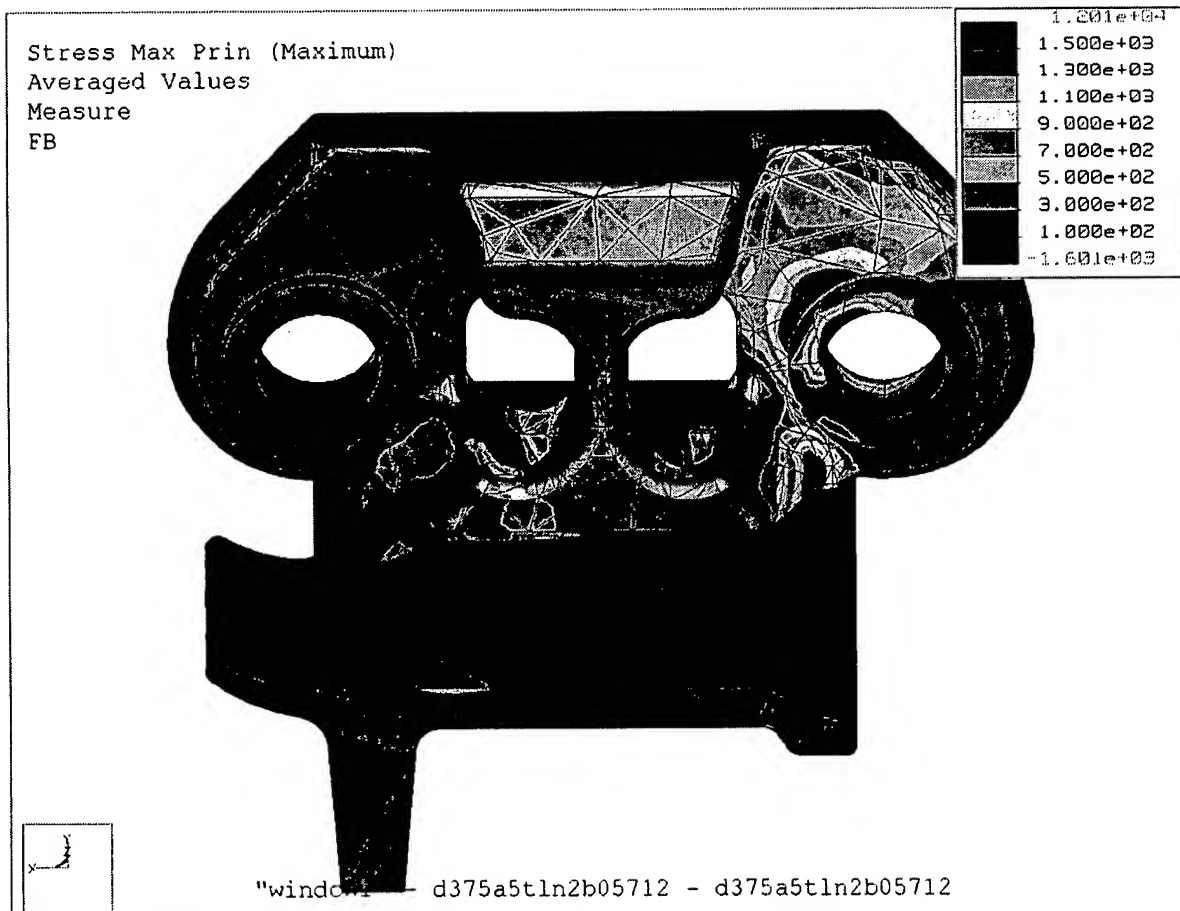
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Fig. 2 shows an internal link according to the present invention under the same condition:



In spite of the simple structural difference, the effect obtained from the present invention is remarkable.

It is respectfully submitted that none on the applied art, alone or in combination, teaches or suggests the features of claimed invention as discussed above. Thus, one of ordinary skill in the art would not be motivated to combine the features all the applied art because such combination would not result in the claimed invention. As a result, it is respectfully submitted that the claims are allowable over the applied art.

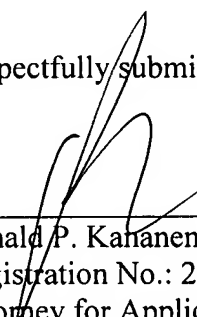
Withdrawal of the rejection is respectfully requested.

In view of the foregoing, reconsideration of the application and allowance of the pending claims are respectfully requested. Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' representative at the telephone number listed below.

Should additional fees be necessary in connection with the filing of this paper or if a Petition for Extension of Time is required for timely acceptance of the same, the Commissioner is hereby authorized to charge Deposit Account No. 18-0013 for any such fees and Applicant(s) hereby petition for such extension of time.

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Respectfully submitted,

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Enclosures: Amendment Transmittal

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